#634

ED STATES
DEPARTMENT OF
COMMERCE
PUBLICATION

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE

Age Composition, Weight, Length, and Sex of Herring, *Clupea pallasii*, Used for Reduction in Alaska, 1929-66

LIBRARY
OCT 4 1971
FISH & WILDLIFE SERVICE

1871
1971

SPECIAL SCIENTIFIC REPORT-FISHERIES No. 634

The National Marine Fisheries Service (NMFS) does not approve, recommend or endorse any proprietary product or proprietary material mentioned in this publication. No reference shall be made to NMFS, or to this publication furnished by NMFS, in any advertising or sales promotion which would indicate or imply that NMFS approves, recommends or endorses any proprietary product or proprietary material mentioned herein, or which has as its purpose an intent to cause directly or indirectly the advertised product to be used or purchased because of this NMFS publication.

UNITED STATES DEPARTMENT OF COMMERCE
Maurice H. Stans, *Secretary*

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Dr. Robert M. White, *Administrator*

NATIONAL MARINE FISHERIES SERVICE
Philip M. Roedel, *Director*

Age Composition, Weight, Length, and Sex of Herring, *Clupea pallasii*, Used for Reduction in Alaska, 1929-66

By

GERALD M. REID

NOAA Technical Report NMFS SSRF 634

Seattle, Washington
July 1971

CONTENTS

	Page
Introduction	1
Geographical distribution of catches	1
Collection and interpretation of the biological data	3
Explanation of tables	4
Catches in Alaska herring reduction fishery (Table 1)	4
Quotas permitted by regulation and annual catches from quota areas (Table 2)	5
Age composition of samples (Tables 3, 4, 5, and 6)	5
Mean weight by age (Tables 7, 8, 9, and 10)	5
Mean body length by age (Tables 11, 12, 13, and 14)	5
Sex by age (Tables 15, 16, 17, and 18)	6
Literature cited	6

Age Composition, Weight, Length, and Sex of Herring, *Clupea pallasii*, Used for Reduction in Alaska, 1929-66

By

GERALD M. REID, Fishery Biologist

National Marine Fisheries Service, Gibson Cove Facility
Kodiak, Alaska 99615[1]

ABSTRACT

Sampling data from the reduction fisheries for herring, *Clupea pallasii*, in southeastern Alaska (1929-66), Prince William Sound (1937-58), and Kodiak (1936-59) are summarized. The data include the weight of the catches, the weight allowed by quota, and age composition, average weight, average length, and sex ratios.

INTRODUCTION

In Alaska, herring, *Clupea pallasii*, have long been used for food and bait, but for many years their principal use was in the so-called reduction fishery. In this fishery, which began in 1882 (Skud, Sakuda, and Reid, 1960) and expanded rapidly, the herring was processed into meal for animal food or fertilizer, or into oil for paints and industrial uses. The greatest production was from 1929 to 1966, when more than 90% of all the herring caught went into the reduction processes. In the peak year, 1937, 125,000 tons of herring were processed. After 1937, the industry declined, and by 1966 the last processing plant engaged exclusively in herring reduction was closed.

Until 1925, about the only information available on the reduction fishery was the amount of meal and oil produced; little or nothing was known about the numbers of fish processed or the biology of the populations being fished. The fishery had become so large by 1925 that concern was being expressed about overexploitation of the herring resource. As a result, the U.S. Bureau of Fisheries began gathering more extensive data. The Bureau program, which continued through 1966, emphasized the collection of statistics on the catches and of information on the biology of the herring.

This paper compiles the data gathered in various years between 1929 and 1966 in the three major herring fishing areas of Alaska —southeastern Alaska, Prince William Sound (including Resurrection Bay-Day Harbor),[2] and Kodiak (Figure 1).

GEOGRAPHICAL DISTRIBUTION OF CATCHES

The distributions of the catches in the three areas, which were designated as regulatory districts to implement the regulations necessary for management, are shown in Figures 2, 3, and 4.

The sizes of the catches and the amount of fishing effort varied greatly within the area covered by each district because (1) herring

[1] Reid was employed at the National Marine Fisheries Service Biological Laboratory at Auke Bay, Alaska, when he was compiling the data for this report.

[2] Data from Resurrection Bay-Day Harbor, a regulatory subdistrict of Prince William Sound, are presented separately in this paper because both bays are located outside of Prince William Sound proper.

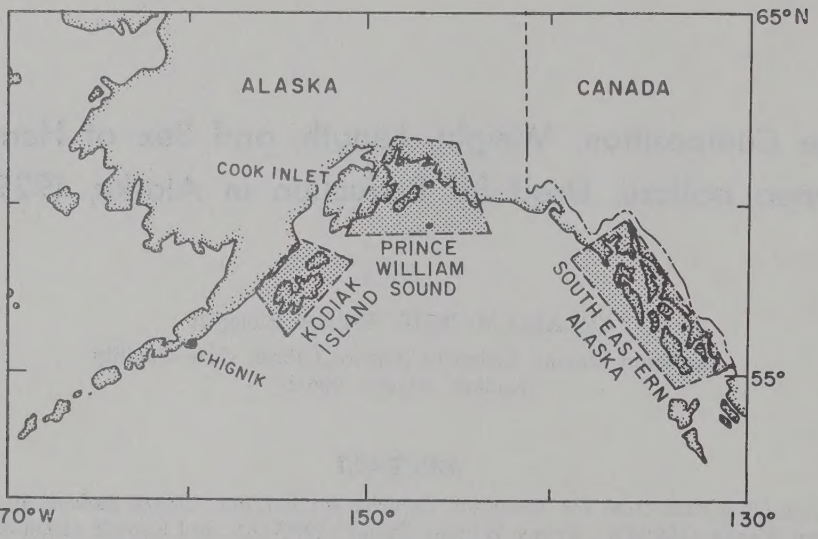

Figure 1.—Three major herring fishing areas of Alaska where statistics and biological data were taken between 1929 and 1966.

tended to concentrate in certain areas, (2) regulations restricted the geographic extent and timing of commercial fishing within each district, and (3) fishing tended to be more intense near the reduction plants. As an example—between 1939 and 1966, more than 40% of the landings in southeastern Alaska came from the vicinity of Larch Bay on southwest Baranof Island (Figure 2). This bay usually had large concentrations of feeding herring in the late summer, was one of the few locations where the herring fleet enjoyed unrestricted entry, and was relatively close to several reduction plants. In all three districts, in years when herring were not abundant in areas of normally high concentrations, the fishing fleet was widely dispersed, and the total annual catch was made up of small catches from many locations (Figures 2, 3, and 4).

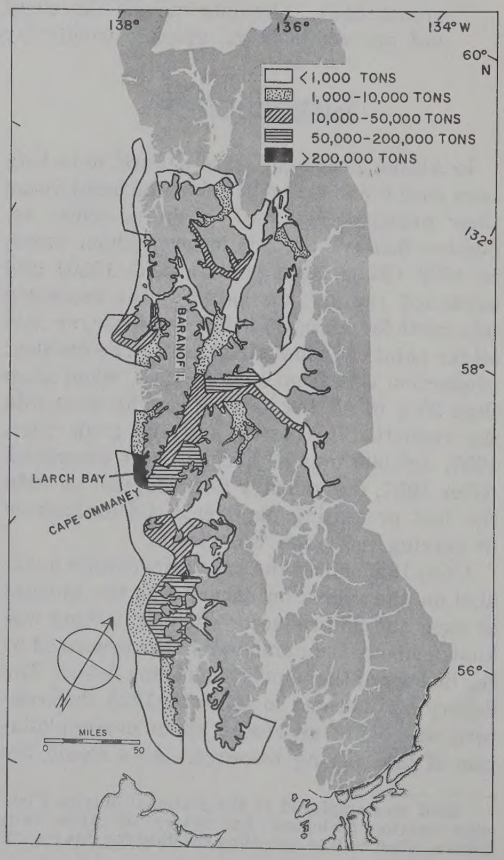

Figure 2.—Distribution of herring catches in southeastern Alaska, 1929-66.

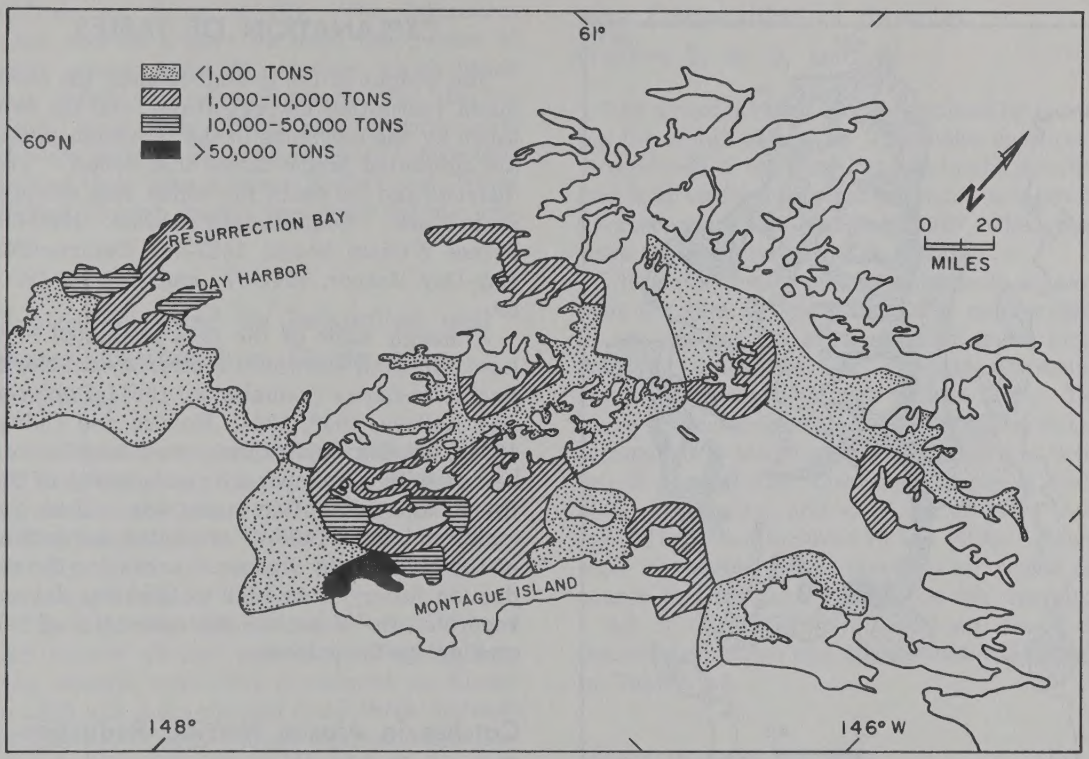

Figure 3.—Distribution of herring catches in Prince William Sound (including Resurrection Bay and Day Harbor), 1937-58.

COLLECTION AND INTERPRETATION OF THE BIOLOGICAL DATA

The methods used in the Bureau program of collecting data from the reduction fishery changed little between 1929 and 1966. Some minor technical improvements were made in the sampling equipment such as the use of microprojectors instead of microscopes in the analysis of scales and improvements in the devices to measure the lengths of herring. Other aspects remained much the same, however, as they were in 1929 under the program described by Rounsefell (1930).

Although the method remained the same, the scope of the sampling increased. Before 1952, sampling during the fishing season was not continuous at any station nor was it concurrent within or between districts. Individual samples often ranged anywhere from 25 to 50 fish. The sampling procedure was standardized between 1952 and 1956; a 30-fish sample was taken from every vessel unloaded at one operating reduction plant in each district. Beginning in 1957, a biologist, who sampled every delivery, was stationed at each plant for the duration of the fishing season. He examined every fish in each sample for age, weight, length, and sex.

Migrations of tagged herring (Dahlgren, 1936; Skud, 1963) and statistical studies of vertebral counts (Rounsefell and Dahlgren, 1935) suggest that fished herring populations in the southeastern district are not entirely homogeneous.[3] I suspect that the same may be true for stocks within the Kodiak and Prince William Sound districts. Since vessels ranged wider during years of low herring availability,

[3] Tagging experiments have indicated that major fishing locations such as Cape Ommaney contain herring from more than one stock. A stock is defined here as fish from a common spawning location.

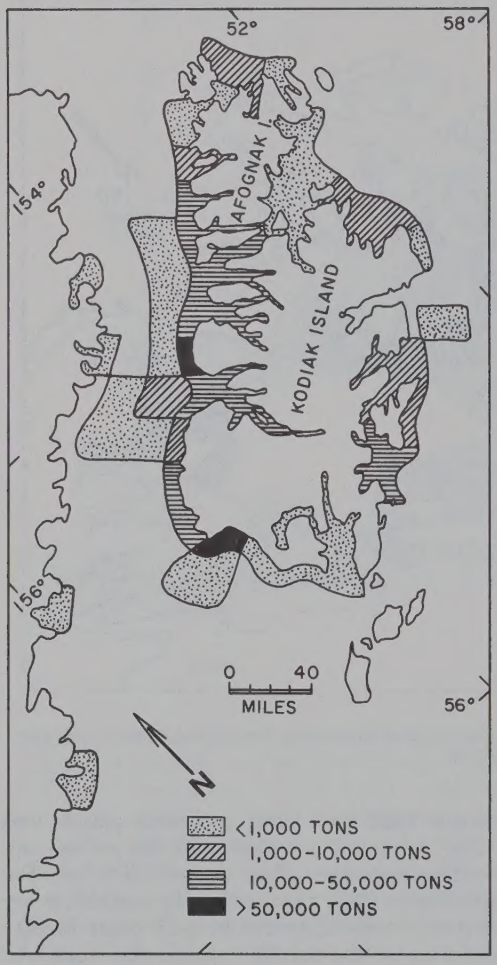

Figure 4.—Distribution of herring catches at Kodiak, 1936-59.

samples taken during those years may represent a heterogeneous population. The possibility of a mixture of fish with different genetic or morphological characteristics requires that considerable discretion be used in interpreting data from a particular fishery, especially when these data are used in studying the population dynamics of an entire district. The biologists gathering the herring data were aware of the problem and performed limited studies to define the extent of mixing, but the results of the investigations were not conclusive.

EXPLANATION OF TABLES

The weight of the annual catches, the catch quota (permitted by regulation), and the data taken by the biologists in the reduction plants are presented in the tables that follow. The districts and the years for which data are presented are: Southeastern Alaska, 1929-66; Prince William Sound, 1937-58; Resurrection Bay-Day Harbor, 1941-57; and Kodiak, 1936-59.

Although some of the data presented here have appeared elsewhere (International North Pacific Fisheries Commission, 1961; Dahlgren and Kolloen, 1943, 1944; Kolloen and Elling, 1948), earlier publications were largely concerned with contemporary management of the fishery and were often incomplete. Skud, Sakuda, and Reid (1960) presented summaries of the landings by statistical areas for the reduction fishery from 1929 to 1956 but did not report on the biological characteristics of fish making up the catches.

Catches in Alaska Herring Reduction Fishery (Table 1)

Table 1 gives the annual catches (weight) of herring and the number of boats involved. The catches are given in short tons (2,000 lb.), although fishermen were usually paid by the barrel (about 250 lb.). I converted the number of barrels reported on the "fish ticket"—a delivery receipt that documented the amount of fish a vessel delivered to the reduction plant—into tons. In 1958 continuous-weighing machines were installed at several plants in southeastern Alaska to weigh the catches more rapidly. Fishermen did not trust the weighing machines, however, and plant operators reverted to the original process of measurement—filling and dumping a barrel-sized hopper. Although variations in the size of individual herring from landing to landing may have affected the relation between volume and weight and therefore the true tonnage of fish delivered, I consider the variation negligible.

Some of the catch data in Table 1 differ slightly from those in earlier publications (International North Pacific Fisheries Commission, 1961; Dahlgren and Kolloen, 1943, 1944;

Kolloen and Elling, 1948). The differences occur because I have included the catches of boats smaller than 20 net tons, which fished only a few days of each season, and also because I have made adjustments for movements of boats between districts, especially those that divided their time between Kodiak and Prince William Sound during particular fishing seasons.

Quotas Permitted by Regulation and Annual Catches from Quota Areas (Table 2)

The reduction fishery was regulated by restricting the time, the place, the method, and the catch of the fishing fleet. Many of the regulations imposed on the herring fishery were actually made to protect other fishery resources, principally salmon.

Catch quotas, which were believed to be a particularly efficient way of limiting the herring fishery, were first introduced in Alaska in 1940 and were applied to all three districts (Table 2). Catch quotas restricted the herring fleet by limiting the weight of fish that could be removed annually from specific areas. By 1952, the effectiveness of the quota system was being questioned, and the system was abandoned in the Prince William Sound and Kodiak districts. Biological considerations were usually not the sole determining factors in setting annual quotas. Other problems such as economics of the fishery, possibilities of gear interference, and political pressure from segments of the salmon industry also had an effect on setting the final quota figure. For example, regulations restricting salmon fishing were often expanded to include herring fishing as well because herring and salmon boats sometimes fished in the same areas.

The herring fleet seldom took the allotted quota in a particular area, although annual landings in a district such as southeastern Alaska sometimes exceeded the sum of the district quota because a portion of the catches came from outside established quota areas. Quotas were frequently assigned to areas where the fleet seldom fished, and often no landings were made in an entire season from such areas.

Age Composition of Samples (Tables 3, 4, 5, and 6)

The age of herring was determined by counting the annuli on scales. The scales were read (examined) at the sampling site by the sampler and later verified by other persons; low-power microscopes were used until 1957, when they were replaced by microprojectors.

The new annulus on a herring scale appears near the time of spawning. For convenience in age designation, April is used as the birth date for Alaska herring, although spawning ranges from early March to late June. Because the reduction fishery was sampled in the summer, fish designated as age III are in their fourth year of life; those age IV are in their fifth year of life; and so on. Fish older than age XII are not included in the tables because their aggregate percentage for all years accounts for less than 1% of the fish sampled.

All of the tables that follow are based on the number of fish and the age determinations in Tables 3-6.

Mean Weight by Age (Tables 7, 8, 9, and 10)

The average or mean weight for fish in each age class (Tables 7-10) was obtained by summing the weight of the individuals and dividing by their number. The whole herring was weighed wet on a 500-g scale with 2-g divisions. The mean weights are averages derived from the sum of all subsamples taken each year.

Mean Body Length by Age (Tables 11, 12, 13, and 14)

Two methods have been used for determining the body length of herring taken by the reduction fishery. Before 1957, body lengths were measured (with a machine described by Thompson (1917)) from the tip of the closed mandible to the posterior margin of the silvery epidermis on the caudal peduncle. In 1957 and later, body lengths were measured to the posterior end of the hypural plate (found by dissection), and the measuring machine was

modified from a visual readout to an entirely mechanical readout. This method eliminated errors due to possible misalinement of the sampler's eye and the millimeter scale, and provided more precise measurements.

Body lengths were recorded to the nearest millimeter. To determine the average body length of a fish of a certain age, the lengths of all fish of that age were summed, then divided by the number of fish in the age class. Before 1954, average body lengths were calculated from data arranged in 5-mm groups. After 1954, the 5-mm arrangement was eliminated, and average body lengths were obtained by summing the lengths of all fish for each age class.

Sex by Age (Tables 15, 16, 17, and 18)

Sex was determined for each fish in a sample by visual examination of the gonads. Some difficulty was experienced in determining the sex of juveniles of age I-II, and also the sex of adults during the first few weeks of a fishing season because the fish were still spent from spawning. Both of these problems were usually resolved by microscopic examination of the gonads.

LITERATURE CITED

DAHLGREN, E. H.
1936. Further developments in the tagging of the Pacific herring (*Clupea pallasii*). J. Cons. 11: 229-247.

DAHLGREN, E. H., and L. N. KOLLOEN.
1943. Outlook for the Alaska herring fishery in 1943. U.S. Fish Wildl. Serv., Fish. Leafl. 16, 16 p.
1944. Outlook for the Alaska herring fishery in 1944. U.S. Fish Wildl. Serv., Spec. Sci. Rep. Fish. 25, 18 p.

INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION.
1961. The exploitation, scientific investigation and management of herring (*Clupea pallasii*) on the Pacific coast of North America in relation to the abstention provisions of the North Pacific Fisheries Convention. Int. N. Pac. Fish. Comm., Bull. 4, 100 p.

KOLLOEN, L. N., and C. H. ELLING.
1948. Outlook for the Alaska herring fishery in 1948. U.S. Fish Wildl. Serv., Spec. Sci. Rep. Fish. 52, 23 p.

ROUNSEFELL, G. A.
1930. Contribution to the biology of the Pacific herring (*Clupea pallasii*) and the condition of the fishery in Alaska. U.S. Bur. Fish., Bull. 45: 227-320.

ROUNSEFELL, G. A., and E. H. DAHLGREN.
1935. Races of herring (*Clupea pallasii*) in southeastern Alaska. U.S. Bur. Fish., Bull. 48: 119-141.

SKUD, B. E.
1963. Herring tagging experiments in southeastern Alaska. U.S. Fish Wildl. Serv., Fish. Bull. 63: 19-32.

SKUD, B. E., H. M. SAKUDA, and G. M. REID.
1960. Statistics of the Alaska herring fishery, 1878-1956. U.S. Fish Wildl. Serv., Statist. Dig. 48, 21 p.

THOMPSON, W. F.
1917. A contribution to the life history of the Pacific herring: Its bearing on the condition and future of the fishery. Proc. British Columbia Rep., Comm. Fish. 1916, p. 36-87.

GPO 998-520

Table 1.—Catch (short tons—2,000 lb.) and number of boats[1] operating in Alaska herring reduction fishery, 1929-66.

Year	Southeastern Alaska		Prince William Sound		Resurrection Bay-Day Harbor[2]	Kodiak		Total	
	Catch	Boats	Catch	Boats	Catch	Catch	Boats	Catch	Boats
	tons	no.	tons	no.	tons	tons	no.	tons	no.
1929	78,778	58	--	--	--	--	--	78,778	58
1930	70,854	71	--	--	--	--	--	70,854	71
1931	44,858	27	--	--	--	--	--	44,858	27
1932	49,785	23	--	--	--	--	--	49,785	23
1933	61,587	27	--	--	--	--	--	61,587	27
1934	66,842	34	--	--	--	--	--	66,842	34
1935	58,155	42	--	--	--	--	--	58,155	42
1936	36,712	24	--	--	--	31,458	30	68,170	54
1937	50,333	43	45,626	22	--	29,745	27	125,704	72
1938	22,356	29	56,153	29	--	27,019	23	105,528	66
1939	20,027	26	52,767	30	90	38,601	21	111,485	76
1940	(3/)	5	30,947	29	--	21,000	13	51,947	46
1941	1,915	3	32,466	29	1,578	39,946	20	75,905	52
1942	--	--	1,550	6	187	17,590	9	19,327	15
1943	6,235	4	3,933	14	2,600	29,473	16	42,241	20
1944	16,802	8	7,498	21	15,937	13,771	16	54,008	29
1945	24,523	13	3,137	24	14,615	23,346	19	65,621	38
1946	37,564	13	3,311	24	4/18,769	38,125	17	97,769	37
1947	41,828	34	1,707	12	5/586	48,450	19	92,571	53
1948	16,114	36	14,467	21	5,973	6/46,361	20	82,915	76
1949	14,278	18	252	1	--	--	--	14,530	19
1950	13,409	18	20,348	18	3,846	44,132	16	81,735	52
1951	10,652	13	20,119	28	2,162	7/4,299	16	37,232	46
1952	8/16,020	14	2,875	9	405	9/1,367	4	20,667	26
1953	12,435	10	444	1	90	10/213	1	13,182	11
1954	6,446	4	9,239	4	178	--	--	15,863	8
1955	11,368	6	10,101	8	7,469	--	--	28,938	14
1956	22,819	10	5,801	4	1,646	11,619	6	41,885	18
1957	22,938	13	10,311	4	2,271	21,818	8	57,338	25
1958	36,185	14	3,892	4	--	1,711	4	41,788	22
1959	47,623	15	38	1	47	3,758	6	51,466	21
1960	36,706	15	--	--	--	--	--	36,706	15
1961	22,766	14	--	--	--	--	--	22,766	14
1962	13,977	4	--	--	--	--	--	13,977	4
1963	13,517	5	--	--	--	--	--	13,517	5

See footnotes at end of table.

Table 1.—Catch (short tons—2,000 lb.) and number of boats[1] operating in Alaska herring reduction fishery, 1929-66.—*Cont.*

Year	Southeastern Alaska		Prince William Sound		Resurrection Bay-Day Harbor[2]	Kodiak		Total	
	Catch	Boats	Catch	Boats	Catch	Catch	Boats	Catch	Boats
	tons	no.	tons	no.	tons	tons	no.	tons	no.
1964	22,128	9	--	--	--	--	--	22,128	9
1965	9,268	8	465	(11/)	--	--	--	9,733	--
1966	5,073	7	--	--	--	1,934	(11/)	7,007	--
Total	1,042,876	--	337,447	--	78,449	495,736	--	1,954,508	--

1/ Boats that fished in more than one district during a season are counted only once.
2/ Subdistrict of Prince William Sound (Figure 1) fished by Prince William Sound boats.
3/ No catches made.
4/ Includes 1,735 tons taken in Port Dick (Figure 1).
5/ Includes 63 tons taken in Cook Inlet (Figure 1).
6/ Includes 110 tons taken in Cook Inlet (Figure 1).
7/ Includes 3,181 tons taken in Chignik, subdistrict of Kodiak (Figure 1).
8/ Does not include 1,789 tons taken in November by four boats.
9/ Includes 1,259 tons taken in Chignik, subdistrict of Kodiak (Figure 1).
10/ Includes 52 tons from Cook Inlet (Figure 1).
11/ Number of vessels unknown.

Table 2.—Quota of herring permitted by regulation and annual catch[1] from quota areas, Alaska reduction fishery, 1940-66.

[Entries with dashes indicate that no quota was set in that year]

Year	Southeastern		Prince William Sound		Kodiak	
	Quota	Catch	Quota	Catch	Quota	Catch
	tons	tons	tons	tons	tons	tons
1940	3,750	0	43,750	30,947	37,500	20,757
1941	2/6,250	1,915	31,250	32,466	31,250	31,606
1942	3/250	0	2/9,375	1,550	2/18,750	17,558
1943	12,500	6,235	2/9,375	3,732	2/25,000	25,800
1944	4/25,000	16,802	25,000	7,498	37,500	13,604
1945	4/31,250	24,523	18,750	3,136	37,500	23,346
1946	4/43,750	37,564	18,750	3,320	50,000	38,057
1947	5/43,750	41,828	18,750	1,708	50,000	48,320
1948	5/50,000	16,114	22,500	14,466	48,750	45,307
1949	5/25,000	14,278	18,750	252	31,250	0
1950	5/18,750	13,409	22,500	20,348	34,375	44,080
1951	5/12,500	10,652	22,500	20,119	34,375	746
1952	(6/)	16,020	22,500	2,875	34,375	0
1953	--	12,435	--	--	--	--
1954	6,250	6,446	--	--	--	--
1955	12,500	11,368	--	--	--	--
1956	22,500	22,819	--	--	--	--
1957	22,500	22,938	--	--	--	--
1958	42,500	36,185	--	--	--	--
1959	54,500	47,623	--	--	--	--
1960	44,500	36,706	--	--	--	--
1961	44,500	22,766	--	--	--	--
1962	35,000	13,977	--	--	--	--
1963	35,000	13,517	--	--	--	--
1964	35,000	22,128	--	--	--	--
1965	35,000	9,268	--	--	--	--
1966	35,000	5,073	--	--	--	--

1/Catch figures do not include catches from locations outside established quota areas.

2/This figure does not include quota of 1,250 tons set for October to June (limited by regulation to no more than 500 tons per month).

3/Quota set at 250 tons per month.

4/Figure does not include quota of 250 tons per month from October to June.

5/Figure does not include quota of 250 tons per month from November to May.

6/Summer quota of 12,500 tons removed by regulatory amendment--quota of 250 tons per month in effect from November to May.

Table 3.---Age composition of samples of herring from southeastern Alaska reduction fishery, 1929-66.[1]

[Tr, <0.1 percent]

Year	Samples	Herring	Fish in age class--											
			I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	no.	no.	%	%	%	%	%	%	%	%	%	%	%	%
1929	74	2,730	0.0	5.2	67.5	6.4	4.4	10.2	2.5	1.8	0.7	1.0	0.2	0.1
1930	69	4,007	0.0	1.0	21.6	69.8	3.0	2.4	1.3	0.6	0.2	0.1	0.0	Tr
1931	22	1,266	3.2	13.6	10.1	26.1	39.8	3.7	1.9	1.3	0.2	0.1	0.0	0.0
1932	8	706	0.0	4.8	50.4	11.5	15.9	15.0	1.6	0.4	0.3	0.1	0.0	0.0
1933	8	192	0.0	5.2	10.9	31.3	7.8	22.4	21.9	0.0	0.5	0.0	0.0	0.0
1934	46	1,194	0.0	0.1	75.9	5.5	8.9	3.7	4.8	1.1	0.0	0.0	0.0	0.0
1935	23	592	0.0	1.2	5.9	84.3	4.9	2.2	1.0	0.2	0.3	0.0	0.0	0.0
1936	34	1,347	0.4	9.9	13.1	9.3	62.1	3.0	1.8	0.2	0.2	0.0	0.0	0.0
1937	38	1,122	1.6	34.9	19.9	9.3	6.1	26.9	1.1	0.2	0.0	0.0	0.0	0.0
1938	37	1,628	0.1	21.1	61.8	4.2	2.7	2.5	7.4	0.1	0.1	0.0	0.0	0.0
1939	25	727	1.1	12.0	33.7	45.1	3.7	1.5	1.5	1.0	0.4	0.0	0.0	0.0
1940	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1941	61	1,524	3.7	45.5	36.1	8.7	4.3	1.3	0.3	0.1	0.0	0.0	0.0	0.0
1942	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1943	117	3,252	0.1	13.9	60.5	18.9	3.7	2.0	0.8	0.1	Tr	Tr	0.0	0.0
1944	121	4,008	0.1	25.3	27.1	38.3	7.3	1.3	0.4	0.2	0.0	0.0	0.0	0.0
1945	169	4,201	4.8	2.7	56.9	13.6	18.0	3.1	0.6	0.3	Tr	0.0	0.0	0.0
1946	273	6,614	0.1	29.2	22.0	31.8	7.4	7.8	1.4	0.2	0.1	Tr	0.0	0.0
1947	129	3,100	0.5	3.0	68.0	13.1	12.3	1.9	1.0	0.2	Tr	0.0	0.0	0.0
1948	134	3,265	1.3	4.6	12.1	66.2	4.8	7.3	1.8	0.8	0.1	0.0	Tr	0.0
1949	116	3,505	1.0	17.5	18.0	14.4	39.3	3.7	4.7	0.8	0.6	Tr	Tr	Tr
1950	116	2,897	0.0	3.4	22.6	13.8	22.0	32.9	2.7	2.0	0.5	0.1	0.0	0.0
1951	71	1,764	0.1	10.4	18.2	47.4	12.9	4.9	5.5	0.4	0.2	0.0	0.0	0.0
1952	90	2,249	1.5	7.7	14.0	16.6	37.2	13.3	5.3	3.7	0.4	0.3	0.0	0.0
1953	76	2,646	0.1	37.9	19.1	6.7	17.8	12.2	3.9	1.6	0.7	Tr	Tr	0.0
1954	22	687	0.1	1.5	42.5	19.4	6.0	17.9	8.6	1.0	2.3	0.7	0.0	0.0
1955	76	1,976	0.0	60.1	3.5	20.0	7.1	1.3	4.5	2.7	0.7	0.2	0.2	0.0
1956	74	2,218	0.0	0.0	65.8	3.0	18.0	4.8	1.7	3.6	2.2	0.6	0.1	0.2
1957	298	8,940	0.0	Tr	3.9	83.0	10.0	2.3	0.6	0.2	Tr	Tr	Tr	0.0
1958	432	12,512	0.2	1.2	4.6	4.8	86.0	2.7	0.5	Tr	Tr	Tr	0.0	0.0
1959	449	13,232	1.5	28.1	3.7	3.2	4.9	57.3	0.9	0.4	Tr	Tr	Tr	0.0
1960	311	8,706	Tr	30.8	45.5	3.0	2.2	2.3	15.4	0.7	Tr	0.1	0.0	0.0
1961	232	6,230	0.0	2.0	57.9	31.1	4.4	2.0	1.8	0.8	Tr	0.0	0.0	0.0
1962	54	1,572	0.0	0.5	6.0	80.1	10.9	0.5	0.5	0.8	0.6	0.0	0.0	0.0
1963	40	1,160	0.1	6.5	6.0	11.5	67.7	7.3	0.3	0.2	0.3	0.1	0.0	0.0
1964	81	2,356	0.0	0.1	4.7	4.4	8.1		0.8	0.3	Tr	0.3	0.0	
1965	84	2,484	0.0	0.0	0.7	15.6	23.8	10.9	22.1	25.8	1.1	0.0	0.0	0.0
1966	87	2,606	0.0	8.0	7.4	22.0	36.3	10.2	8.7	6.8	0.5	0.1	0.0	0.0

[1/] Fishery did not operate in 1940 and 1942.

Table 4.—Age composition of samples of herring from Prince William Sound reduction fishery, 1937-58.[1]

[Tr, <0.1 percent]

Year	Samples	Herring	Fish in age class--											
			I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	no.	no.	%	%	%	%	%	%	%	%	%	%	%	%
1937	26	1,147	1.4	21.3	6.7	5.7	3.1	41.6	4.3	4.4	4.5	5.7	1.3	0.0
1938	43	1,337	0.0	9.0	23.3	2.5	4.3	5.4	42.1	3.9	5.2	2.4	1.3	0.6
1939	171	4,570	0.4	5.7	45.8	34.3	0.5	0.8	1.0	9.4	0.8	0.5	0.1	0.4
1940	103	2,575	0.3	26.3	11.8	34.2	23.9	0.3	0.2	0.2	2.4	0.2	0.1	0.0
1941	134	3,345	0.8	35.8	14.1	8.0	25.6	14.7	0.4	0.2	0.2	0.1	0.1	0.0
1942	67	2,265	3.5	31.9	49.1	3.8	1.2	6.1	4.2	0.1	Tr	0.1	0.0	0.0
1943	51	1,271	0.4	51.6	14.3	31.9	1.2	0.0	0.6	Tr	0.0	0.0	0.0	0.0
1944	101	2,520	0.0	54.1	34.5	5.0	6.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0
1945	24	600	0.0	45.5	46.3	6.8	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0
1946	22	549	0.4	71.9	13.7	10.6	2.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0
1947	2	50	0.0	0.0	26.0	24.0	12.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
1948	55	1,364	1.5	8.3	5.5	40.2	9.0	21.7	10.3	1.8	1.7	Tr	0.0	0.0
1949	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1950	99	2,460	Tr	11.6	10.0	15.5	14.1	37.6	5.8	4.6	0.6	0.1	0.1	0.0
1951	96	2,380	0.0	4.3	35.7	10.6	12.3	7.8	22.4	4.0	2.2	0.7	Tr	0.0
1952	66	1,647	3.6	24.3	16.6	36.8	5.7	4.6	2.5	4.6	0.7	0.6	0.0	0.0
1953	4	263	0.4	74.5	12.9	4.2	4.6	1.5	1.9	0.0	0.0	0.0	0.0	0.0
1954	136	4,080	3.8	0.6	92.8	1.4	0.5	0.7	0.1	Tr	0.0	0.0	Tr	0.0
1955	85	2,548	0.0	76.0	1.1	22.0	0.5	Tr	0.3	0.1	0.0	0.0	0.0	0.0
1956	95	2,845	0.1	4.4	87.8	2.1	5.5	Tr	0.1	Tr	0.0	0.0	0.0	0.0
1957	123	3,665	1.4	3.2	1.4	81.0	6.7	5.8	0.5	0.0	0.0	0.0	0.0	0.0
1958	97	2,910	5.4	41.6	19.6	2.0	30.0	0.5	0.9	0.0	0.0	0.0	0.0	0.0

[1] Fishery operated, but no data were collected in 1949.

Table 5.—Age composition of samples of herring from Resurrection Bay-Day Harbor reduction fishery, 1941-57.[1]

[Tr, <0.1 percent]

Year	Samples	Herring	Fish in age class--											
			I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	no.	no.	%	%	%	%	%	%	%	%	%	%	%	%
1941	1	25	0.0	92.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1942	4	196	0.0	34.7	61.2	0.5	1.0	1.0	1.0	0.5	0.0	0.0	0.0	0.0
1943	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1944	30	733	0.0	15.8	47.3	12.3	22.5	1.4	0.1	0.3	0.3	0.0	0.0	0.0
1945	74	1,841	0.0	5.3	62.2	22.8	5.7	3.8	0.1	0.1	0.0	0.0	0.0	0.0
1946	79	1,959	0.1	24.9	14.6	39.7	13.7	4.2	2.6	Tr	Tr	0.0	0.0	0.0
1947	6	149	0.0	0.0	31.6	28.2	22.8	11.4	4.0	2.0	0.0	0.0	0.0	0.0
1948	23	573	0.2	19.0	7.5	49.0	6.6	12.4	4.4	0.5	0.4	0.0	0.0	0.0
1949	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1950	16	399	0.0	10.0	1.5	7.5	11.5	43.1	10.8	10.3	4.0	0.5	0.8	0.0
1951	27	674	0.5	20.9	10.1	5.0	11.0	9.8	31.3	6.7	4.0	0.7	0.0	0.0
1952	11	271	6.3	44.3	14.7	12.9	4.4	5.2	3.7	3.7	1.5	2.9	0.0	0.4
1953	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1954	5	150	0.0	3.3	94.7	1.3	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
1955	46	1,357	Tr	89.4	0.3	10.0	0.3	Tr	Tr	0.0	0.0	0.0	0.0	0.0
1956	21	627	0.0	7.5	89.0	1.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1957	45	1,341	3.8	9.5	0.7	77.5	1.1	7.2	0.2	0.0	0.0	0.0	0.0	0.0

[1] No data were collected in 1943 and 1953, and fishery did not operate in 1949.

Table 6.—Age composition of samples of herring from Kodiak reduction fishery, 1936-59.[1]

[Tr, <0.1 percent]

Year	Samples	Herring	Fish in age class--											
			I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	no.	no.	%	%	%	%	%	%	%	%	%	%	%	%
1936	11	255	0.0	0.0	1.2	6.7	73.7	5.5	1.6	4.3	5.5	1.6	0.0	0.0
1937	21	1,192	0.4	3.0	2.9	3.4	2.4	66.9	4.6	4.4	2.3	7.1	2.6	0.0
1938	51	1,253	0.0	14.6	7.3	4.9	3.7	7.8	49.1	3.5	2.6	3.2	2.7	0.6
1939	88	2,186	0.0	0.8	51.5	16.2	2.6	1.8	2.2	20.4	1.3	1.2	1.0	0.6
1940	102	2,695	Tr	0.4	2.0	55.6	22.6	3.8	2.1	1.6	9.4	0.7	0.7	0.3
1941	91	3,328	0.3	12.6	2.8	4.2	56.8	15.6	2.2	1.1	2.0	2.2	0.2	Tr
1942	113	3,814	Tr	11.7	50.5	3.8	2.3	24.9	5.3	0.5	0.4	0.4	0.2	Tr
1943	169	4,223	Tr	11.3	29.1	44.2	3.2	1.3	8.6	2.0	0.1	0.1	Tr	0.1
1944	60	1,494	0.0	5.2	28.1	39.3	19.2	2.6	3.5	2.0	0.1	0.0	0.0	0.0
1945	78	1,912	0.0	3.3	22.1	33.8	30.3	7.3	0.9	1.4	0.7	0.2	0.0	0.0
1946	121	2,984	0.0	10.8	13.3	17.9	23.1	25.1	7.3	0.7	0.8	0.9	0.1	0.0
1947	146	3,601	0.0	2.2	30.7	10.7	13.8	16.2	19.2	4.9	0.9	0.6	0.7	0.1
1948	128	3,193	0.1	1.5	6.2	32.8	8.7	10.1	13.6	20.1	4.7	0.7	0.4	1.1
1949	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1950	117	2,907	0.0	1.4	51.9	9.4	7.1	12.8	4.1	3.8	4.0	4.2	1.1	0.1
1951	11	374	0.0	0.0	11.2	63.9	7.8	7.0	8.0	0.8	0.8	0.5	0.0	0.0
1951[2]	15	494	0.0	0.0	0.6	98.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1952	2	49	0.0	0.0	6.2	4.0	77.6	0.0	6.2	2.0	2.0	0.0	0.0	0.0
1952[2]	11	273	0.0	7.7	0.4	2.2	88.3	1.1	0.4	0.0	0.0	0.0	0.0	0.0
1953	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1954	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1955	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1956	122	3,660	0.0	0.1	76.8	1.6	16.9	2.0	1.1	0.8	0.6	0.1	0.0	0.0
1957	205	7,080	0.0	0.2	2.1	88.8	3.7	4.7	0.4	0.1	Tr	Tr	0.0	0.0
1958	19	540	0.6	2.2	0.4	0.0	93.7	0.2	2.6	0.4	0.0	0.0	0.0	0.0
1959	51	1,530	17.3	23.6	7.1	2.3	5.0	39.5	4.8	0.0	0.1	0.1	0.0	0.1

[1] Fishery did not operate in 1949, 1954, and 1955; fishery operated in 1953, but no data were collected.
[2] Data are for Chignik area, a subdistrict of Kodiak.

Table 7.—Mean weight of herring by age class, southeastern Alaska reduction fishery 1929-66.[1]

[N.f. indicates no fish in the age class or too few fish to supply reliable data on weight]

Year	Mean weight of fish from age class--											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	g	g	g	g	g	g	g	g	g	g	g	g
1929	N.f.	61.2	103.1	112.9	145.6	165.9	170.3	190.6	204.3	206.5	203.3	191.0
1930	N.f.	67.8	93.3	123.7	134.3	165.2	172.6	193.3	172.8	219.8	N.f.	N.f.
1931	--	--	--	--	--	--	--	--	--	--	--	--
1932	--	--	--	--	--	--	--	--	--	--	--	--
1933	--	--	--	--	--	--	--	--	--	--	--	--
1934	--	--	--	--	--	--	--	--	--	--	--	--
1935	--	--	--	--	--	--	--	--	--	--	--	--
1936	--	--	--	--	--	--	--	--	--	--	--	--
1937	--	--	--	--	--	--	--	--	--	--	--	--
1938	--	--	--	--	--	--	--	--	--	--	--	--
1939	--	--	--	--	--	--	--	--	--	--	--	--
1940	--	--	--	--	--	--	--	--	--	--	--	--
1941	39.4	74.6	89.2	110.0	128.8	154.6	163.2	172.0	N.f.	N.f.	N.f.	N.f.
1942	--	--	--	--	--	--	--	--	--	--	--	--
1943	37.7	72.1	95.9	112.5	120.3	135.8	150.2	139.5	154.0	N.f.	N.f.	N.f.
1944	32.8	73.9	98.2	115.7	130.0	135.8	145.8	172.6	N.f.	N.f.	N.f.	N.f.
1945	35.6	74.9	104.4	121.9	138.1	156.8	156.1	163.8	207.0	N.f.	N.f.	N.f.
1946	40.5	72.2	97.3	117.5	130.5	143.0	154.0	147.0	160.9	185.0	N.f.	N.f.
1947	36.9	78.7	103.1	123.8	140.2	152.1	159.7	182.6	N.f.	138.0	N.f.	N.f.
1948	39.0	70.7	102.5	118.1	135.7	99.0	151.8	154.4	162.5	N.f.	148.0	N.f.
1949	35.6	73.9	96.3	124.7	142.2	159.0	163.9	161.2	174.0	148.0	210.0	195.0
1950	N.f.	82.7	106.9	122.9	142.2	151.9	169.2	166.9	168.9	160.0	N.f.	N.f.
1951	29.5	64.5	99.9	116.8	132.2	145.7	154.1	170.2	171.2	N.f.	N.f.	N.f.
1952	31.9	72.6	89.6	118.3	129.4	148.8	164.7	163.2	183.3	183.4	N.f.	N.f.
1953	40.3	70.5	99.1	116.0	145.9	141.2	181.0	167.0	172.1	204.0	148.0	N.f.
1954	28.0	67.4	106.6	124.7	143.8	165.8	166.1	166.9	175.3	184.2	N.f.	N.f.
1955	N.f.	77.8	101.0	128.8	140.3	159.7	177.4	172.0	171.7	180.4	179.8	N.f.
1956	N.f.	N.f.	106.3	124.8	145.7	165.4	170.2	173.3	175.8	213.0	223.0	216.0
1957	N.f.	N.f.	106.2	111.5	117.8	132.4	146.5	158.7	N.f.	N.f.	N.f.	N.f.
1958	35.9	64.9	87.0	110.9	130.5	141.4	155.8	161.7	148.0	176.0	N.f.	N.f.
1959	35.0	80.5	92.0	111.4	125.1	143.5	155.5	158.8	172.5	213.5	180.0	N.f.
1960	55.0	56.2	98.1	109.1	123.7	133.3	145.2	152.8	164.0	150.8	N.f.	N.f.
1961	N.f.	82.0	92.0	106.8	118.9	138.6	149.1	159.8	227.0	N.f.	N.f.	N.f.
1962	N.f.	82.3	105.7	123.2	138.3	154.1	158.0	162.5	168.9	N.f.	N.f.	N.f.
1963	36.0	75.1	102.4	129.4	145.6	160.6	184.5	176.0	210.3	196.0	N.f.	N.f.
1964	N.f.	87.0	115.0	130.5	142.2	174.3	179.6	184.5	205.4	173.0	213.0	N.f.
1965	N.f.	N.f.	99.7	128.5	144.3	159.0	170.0	188.5	199.5	N.f.	N.f.	N.f.
1966	75.0	81.4	111.8	141.6	145.4	165.4	178.8	191.8	184.9	214.0	N.f.	N.f.

[1] See Table 3 for numbers of samples and numbers of fish. No data on weight were collected in 1931-39, and the fishery did not operate in 1940 and 1942.

Table 8.—Mean weight of herring by age class, Prince William Sound reduction fishery, 1937-58.[1]

[N.f. indicates no fish in the age class or too few fish to supply reliable data on weight]

Year	Mean weight of fish from age class--											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	g	g	g	g	g	g	g	g	g	g	g	g
1937	--	--	--	--	--	--	--	--	--	--	--	--
1938	--	--	--	--	--	--	--	--	--	--	--	--
1939	--	--	--	--	--	--	--	--	--	--	--	--
1940	--	--	--	--	--	--	--	--	--	--	--	--
1941	30.2	74.7	111.4	134.0	153.9	166.2	185.5	199.6	205.7	202.0	265.0	N.f.
1942	29.6	78.6	103.8	131.6	153.4	166.2	181.7	194.7	188.0	208.5	N.f.	N.f.
1943	45.0	86.2	111.7	131.9	149.0	N.f.	185.6	178.0	N.f.	N.f.	N.f.	N.f.
1944	N.f.	78.6	113.3	142.5	157.4	167.0	160.8	N.f.	N.f.	N.f.	N.f.	N.f.
1945	N.f.	71.1	100.2	129.1	N.f.	150.6	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.
1946	24.5	62.6	94.4	117.5	140.9	150.3	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.
1947	N.f.	N.f.	89.5	105.3	131.2	139.5	162.0	N.f.	N.f.	N.f.	N.f.	N.f.
1948	38.7	72.2	99.2	121.0	142.8	151.8	170.8	180.8	180.2	217.0	N.f.	N.f.
1949	--	--	--	--	--	--	--	--	--	--	--	--
1950	17.0	70.4	104.4	128.1	142.9	155.1	168.8	176.2	182.4	170.3	172.0	N.f.
1951	N.f.	75.2	102.4	127.8	147.8	156.6	170.1	177.5	184.6	192.0	217.0	N.f.
1952	22.5	74.2	104.1	121.2	143.7	159.1	170.7	173.2	175.3	184.0	N.f.	N.f.
1953	--	--	--	--	--	--	--	--	--	--	--	--
1954	21.4	58.3	92.3	113.2	162.2	160.3	187.8	N.f.	N.f.	N.f.	N.f.	N.f.
1955	N.f.	57.5	79.4	108.2	113.2	155.0	164.3	183.0	N.f.	N.f.	N.f.	N.f.
1956	14.0	59.2	71.0	103.7	110.7	138.0	123.0	176.0	N.f.	N.f.	N.f.	N.f.
1957	34.3	80.2	76.0	110.2	112.3	142.2	138.7	N.f.	N.f.	N.f.	N.f.	N.f.
1958	32.5	65.1	90.5	101.0	118.4	132.9	139.9	N.f.	N.f.	N.f.	N.f.	N.f.

[1] See Table 4 for numbers of samples and numbers of fish. No data on weight were collected in 1937-40, 1949, and 1953.

Table 9.—Mean weight of herring by age class, Resurrection Bay-Day Harbor reduction fishery, 1941-57.[1]

[N.f. indicates no fish in the age class or too few fish to supply reliable data on weight]

Year	Mean weight of fish from age class--											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	g	g	g	g	g	g	g	g	g	g	g	g
1941	N.f.	78.3	118.5	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.
1942	N.f.	72.9	95.4	116.7	160.7	140.3	161.5	187.0	N.f.	N.f.	N.f.	N.f.
1943	--	--	--	--	--	--	--	--	--	--	--	--
1944	N.f.	79.9	116.1	139.2	158.5	168.5	162.0	195.3	197.0	N.f.	N.f.	N.f.
1945	N.f.	68.8	100.2	127.4	143.4	158.9	164.5	222.0	N.f.	N.f.	N.f.	N.f.
1946	37.0	58.6	92.4	116.3	138.8	151.8	158.5	172.0	167.0	N.f.	N.f.	N.f.
1947	N.f.	N.f.	89.5	112.0	128.7	141.2	172.0	162.0	N.f.	N.f.	N.f.	N.f.
1948	26.0	74.5	98.7	123.2	138.9	155.3	164.5	185.0	177.0	N.f.	N.f.	N.f.
1949	--	--	--	--	--	--	--	--	--	--	--	--
1950	17.0	70.2	97.0	133.7	146.5	156.6	166.1	173.4	177.9	179.5	188.7	N.f.
1951	18.7	73.5	112.0	140.0	159.1	170.3	176.4	185.8	187.7	184.5	N.f.	N.f.
1952	18.5	75.0	110.7	128.6	162.4	158.9	180.9	183.5	187.0	194.5	N.f.	N.f.
1953	--	--	--	--	--	--	--	--	--	--	--	--
1954	N.f.	60.0	89.6	105.6	174.0	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.
1955	N.f.	58.4	88.0	114.3	133.8	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.
1956	N.f.	59.3	69.0	96.8	113.1	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.
1957	28.9	65.9	90.1	116.5	133.0	146.2	156.5	N.f.	N.f.	N.f.	N.f.	N.f.

[1] See Table 5 for numbers of samples and numbers of fish. No data were collected in 1943 and 1953, and fishery did not operate in 1949.

Table 10.—Mean weight of herring by age class, Kodiak reduction fishery, 1936-59.[1]

[N.f. indicates no fish in the age class or too few fish to supply reliable data on weight]

Year	Mean weight of fish from age class--											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	g	g	g	g	g	g	g	g	g	g	g	g
1936	--	--	--	--	--	--	--	--	--	--	--	--
1937	--	--	--	--	--	--	--	--	--	--	--	--
1938	--	--	--	--	--	--	--	--	--	--	--	--
1939	--	--	--	--	--	--	--	--	--	--	--	--
1940	--	--	--	--	--	--	--	--	--	--	--	--
1941	37.3	89.9	117.3	151.6	160.9	181.1	199.2	207.0	215.2	232.1	265.6	N.f.
1942	40.3	72.1	116.4	134.8	162.0	179.0	192.4	205.2	223.2	228.4	229.3	247.0
1943	N.f.	70.4	109.7	149.7	163.2	183.6	200.7	210.0	237.0	274.5	252.0	259.5
1944	N.f.	74.1	106.1	132.7	159.2	169.1	194.1	210.7	177.0	N.f.	N.f.	N.f.
1945	N.f.	87.2	111.9	136.6	159.6	177.4	181.4	211.5	212.6	224.5	N.f.	N.f.
1946	N.f.	75.6	108.6	139.1	161.8	183.3	195.8	218.1	232.9	240.0	239.5	N.f.
1947	N.f.	79.4	112.4	141.4	164.1	182.1	196.5	212.1	225.2	240.2	240.5	237.0
1948	32.0	82.7	112.9	142.5	166.2	189.4	204.2	218.8	228.3	232.7	246.2	253.9
1949	--	--	--	--	--	--	--	--	--	--	--	--
1950	N.f.	80.1	106.7	139.3	172.0	197.6	210.7	230.4	236.9	259.0	269.4	294.5
1951[2]	N.f.	N.f.	111.0	110.1	156.3	193.3	215.8	225.3	252.0	269.5	N.f.	N.f.
1952[2]	N.f.	N.f.	113.3	99.3	131.5	134.3	208.5	211.0	256.0	N.f.	248.0	N.f.
1953	--	--	--	--	--	--	--	--	--	--	--	--
1954	--	--	--	--	--	--	--	--	--	--	--	--
1955	--	--	--	--	--	--	--	--	--	--	--	--
1956	N.f.	N.f.	71.5	84.4	111.4	130.7	141.2	163.6	194.9	192.6	215.5	N.f.
1957	N.f.	48.9	91.4	109.7	118.1	140.3	156.4	186.0	203.0	189.0	N.f.	N.f.
1958	34.7	69.2	106.0	N.f.	125.4	153.0	154.9	191.0	N.f.	N.f.	N.f.	N.f.
1959	26.7	58.2	72.0	81.0	119.6	137.6	164.3	N.f.	242.0	182.0	N.f.	N.f.

[1] See Table 6 for numbers of samples and numbers of fish. No data on weight were collected in 1936-40 and 1953, and fishery did not operate in 1949, 1954, and 1955.

[2] Includes Chignik data

Table 11.—Mean body length of herring by age class, southeastern Alaska reduction fishery, 1937-66.[1]

[N.f. indicates no fish in the age class or too few fish to supply reliable data on length]

Year	Mean length of fish in age class--											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1929	N.f.	170.0	196.7	207.5	224.2	228.4	237.9	245.3	248.1	244.3	237.1	242.8
1930	N.f.	175.7	195.8	221.9	233.0	231.7	236.4	243.5	247.9	258.5	N.f.	248.0
1931	133.4	179.9	196.5	211.1	221.6	225.5	228.6	230.9	233.0	255.0	N.f.	N.f.
1932	--	--	--	--	--	--	--	--	--	--	--	--
1933	--	--	--	--	--	--	--	--	--	--	--	--
1934[2]	N.f.	199.0	195.7	213.0	226.1	234.1	239.9	243.5	N.f.	N.f.	N.f.	N.f.
1935	--	--	--	--	--	--	--	--	--	--	--	--
1936	--	--	--	--	--	--	--	--	--	--	--	--
1937	--	--	--	--	--	--	--	--	--	--	--	--
1938	180.5	204.7	209.2	219.9	225.8	229.7	251.0	248.0	N.f.	N.f.	N.f.	N.f.
1939	--	--	--	--	--	--	--	--	--	--	--	--
1940	--	--	--	--	--	--	--	--	--	--	--	--
1941	--	--	--	--	--	--	--	--	--	--	--	--
1942	--	--	--	--	--	--	--	--	--	--	--	--
1943[3]	154.5	181.7	195.5	207.9	214.9	221.5	229.6	229.5	N.f.	N.f.	N.f.	N.f.
1944[3]	145.8	179.6	195.6	206.2	215.6	219.6	223.7	233.7	N.f.	N.f.	N.f.	N.f.
1945[3]	142.4	178.4	194.8	205.1	212.6	221.7	224.1	229.9	237.0	N.f.	N.f.	N.f.
1946[3]	147.0	177.3	194.7	203.9	211.4	217.4	224.2	224.5	229.5	229.5	N.f.	N.f.
1947[3]	141.5	181.2	195.8	204.9	211.7	219.8	222.2	235.0	212.0	N.f.	N.f.	N.f.
1948[3]	146.0	177.1	196.5	205.0	215.3	219.2	225.6	226.6	232.0	N.f.	N.f.	N.f.
1949[3]	152.7	180.2	193.9	208.7	214.6	222.8	223.7	223.2	228.0	222.0	232.0	237.0
1950[3]	N.f.	181.8	201.3	208.1	216.6	220.5	228.6	227.7	227.0	225.8	N.f.	N.f.
1951[3]	132.0	170.3	192.7	202.7	210.4	218.5	221.0	226.1	225.3	N.f.	N.f.	N.f.
1952[3]	137.3	173.4	191.0	203.8	213.0	221.0	226.9	228.3	234.5	217.7	N.f.	N.f.
1953[3]	144.5	175.9	192.5	200.4	216.2	219.5	224.6	226.3	230.7	242.0	217.0	N.f.
1954	135.0	177.7	197.7	207.3	214.6	224.8	224.6	226.3	229.1	228.4	N.f.	N.f.
1955	N.f.	180.9	195.3	210.3	216.1	224.8	233.3	231.7	229.5	230.4	233.8	N.f.
1956	N.f.	N.f.	197.8	208.2	218.1	227.4	230.7	232.6	232.3	248.2	251.0	242.5
1957	N.f.	N.f.	195.7	199.8	204.0	214.3	222.2	227.2	229.3	220.3	235.0	N.f.
1958	139.3	161.3	178.6	193.5	202.8	209.5	218.9	224.3	223.0	227.0	N.f.	N.f.
1959	128.4	169.7	174.7	185.5	192.7	199.7	205.1	207.4	211.0	232.5	226.5	N.f.
1960	156.0	164.7	186.9	193.5	202.6	207.9	212.4	215.3	228.5	220.2	N.f.	N.f.
1961	N.f.	173.9	181.5	190.2	195.9	209.1	215.5	217.0	180.0	N.f.	N.f.	N.f.
1962	N.f.	167.6	188.3	195.6	203.2	209.0	215.3	215.7	221.5	N.f.	N.f.	N.f.
1963	134.0	163.0	179.2	192.5	199.0	205.9	215.0	211.0	225.3	224.0	N.f.	N.f.
1964	N.f.	171.5	183.9	192.7	202.7	211.4	212.2	219.6	234.6	217.0	236.2	N.f.
1965	N.f.	N.f.	186.2	199.7	205.8	214.1	220.3	223.1	228.7	N.f.	N.f.	N.f.
1966	162.0	168.4	190.7	204.3	207.9	215.5	219.1	223.1	225.3	232.5	N.f.	N.f.

[1] See Table 3 for numbers of samples and numbers of fish. No data on length were calculated in 1932-33, 1934-37, 1939, and 1941; and the fishery did not operate in 1940 and 1942.
[2] Data from Cape Ommaney only.
[3] Lengths calculated from 5-mm midpoints.

Table 12.—Mean body length of herring by age class, Prince William Sound reduction fishery, 1937-58.[1]

[N.f. indicates no fish in the age class or too few fish to supply reliable data on weight]

Year	Mean length of fish in age class--											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1937[2]	146.2	186.7	207.7	221.7	232.7	239.7	244.2	257.0	264.2	265.8	267.4	N.f.
1938[2]	N.f.	188.8	205.6	224.4	236.1	244.1	247.5	255.5	263.7	266.7	268.4	266.3
1939[2]	140.0	174.3	201.5	215.3	225.6	240.0	248.4	248.2	252.5	260.5	267.5	268.3
1940[2]	N.f.	182.5	207.9	223.9	229.9	240.3	248.0	249.8	254.5	260.0	260.8	264.1
1941[2]	138.0	182.0	203.4	215.4	224.4	230.7	244.1	252.5	237.5	247.5	N.f.	N.f.
1942	138.1	184.2	198.4	216.5	223.0	231.0	235.7	240.3	N.f.	252.5	N.f.	N.f.
1943[2]	N.f.	185.7	209.2	214.1	221.6	N.f.	230.1	237.0	N.f.	N.f.	N.f.	N.f.
1944[2]	N.f.	182.8	200.8	211.4	219.5	220.5	225.3	N.f.	N.f.	N.f.	N.f.	N.f.
1945[2]	N.f.	177.8	195.2	211.7	N.f.	219.0	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.
1946[2]	132.0	173.3	193.6	205.8	217.0	227.0	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.
1947[2]	N.f.	N.f.	195.3	206.5	214.3	220.8	227.0	N.f.	N.f.	N.f.	N.f.	N.f.
1948[2]	149.6	180.2	192.9	208.4	219.2	223.9	231.0	233.6	234.6	247.0	N.f.	N.f.
1949	--	--	--	--	--	--	--	--	--	--	--	--
1950[2]	122.0	180.8	202.9	213.8	219.4	225.8	230.5	232.1	238.1	232.0	232.0	N.f.
1951[2]	118.7	184.8	201.3	214.2	224.1	228.3	233.7	235.4	243.6	241.7	252.0	N.f.
1952[2]	124.1	182.7	201.4	209.1	195.2	229.0	236.5	236.1	238.7	243.0	N.f.	N.f.
1953	--	--	--	--	--	--	--	--	--	--	--	--
1954	127.6	169.8	191.4	203.4	227.2	225.0	234.3	242.0	N.f.	N.f.	N.f.	N.f.
1955	N.f.	163.3	182.1	200.1	206.2	227.5	229.1	238.0	N.f.	N.f.	N.f.	N.f.
1956	112.5	176.6	182.1	207.7	209.2	225.0	212.5	246.0	N.f.	N.f.	N.f.	N.f.
1957	127.4	161.9	172.8	189.3	193.2	204.5	208.7	N.f.	N.f.	249.0	N.f.	N.f.
1958	132.6	163.7	182.4	190.1	199.4	210.3	212.9	N.f.	N.f.	N.f.	N.f.	N.f.

[1] See Table 4 for numbers of samples and numbers of fish. No data on length were collected in 1949 and 1953.
[2] Lengths calculated from 5--mm midpoints.

Table 13.—Mean body length of herring by age class, Resurrection Bay-Day Harbor reduction fishery, 1941-57.[1]

[N.f. indicates no fish in the age class or too few fish to supply reliable data on length]

Year	Mean length of fish in age class--											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1941	N.f.	175.5	203.0	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.
1942	N.f.	183.0	198.4	199.5	228.0	223.5	232.0	238.0	N.f.	N.f.	N.f.	N.f.
1943	--	--	--	--	--	--	--	--	--	--	--	--
1944[2]	N.f.	182.1	200.8	211.8	220.7	224.0	222.0	237.0	242.0	N.f.	N.f.	N.f.
1945[2]	N.f.	177.4	198.4	211.8	221.4	227.8	232.0	252.0	N.f.	N.f.	N.f.	N.f.
1946[2]	N.f.	169.6	194.1	208.2	219.1	226.9	226.8	N.f.	N.f.	N.f.	N.f.	N.f.
1947[2]	N.f.	N.f.	194.8	207.0	215.3	217.4	228.0	230.3	N.f.	N.f.	N.f.	N.f.
1948	136.0	182.8	197.4	207.8	215.9	223.1	228.6	237.7	233.0	N.f.	240.2	N.f.
1949	--	--	--	--	--	--	--	--	--	--	--	--
1950[2]	N.f.	177.3	202.0	214.2	220.6	226.0	229.4	230.6	233.3	N.f.	237.0	N.f.
1951[2]	N.f.	179.2	203.5	217.5	226.2	230.9	235.1	238.4	241.0	N.f.	235.8	N.f.
1952[2]	115.5	179.6	204.3	210.9	229.3	231.2	237.0	235.5	244.5	N.f.	243.3	252.0
1953	--	--	--	--	--	--	--	--	--	--	--	--
1954	N.f.	171.8	191.0	201.0	N.f.	N.f.	N.f.	239.0	N.f.	N.f.	N.f.	N.f.
1955	N.f.	165.2	185.8	205.5	215.3	230.0	227.0	N.f.	N.f.	N.f.	N.f.	N.f.
1956	N.f.	178.3	184.7	204.5	204.6	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.	N.f.
1957	129.7	166.7	185.4	195.3	222.9	211.8	225.0	N.f.	N.f.	N.f.	N.f.	N.f.

[1] See Table 5 for numbers of samples and numbers of fish. No data were collected in 1943 and 1953, and fishery did not operate in 1949.

[2] Lengths calculated from 5-mm midpoints.

Table 14.—Mean body length of herring by age class, Kodiak reduction fishery, 1936-59.[1]

[N.f. indicates no fish in the age class or too few fish to supply reliable data on length]

Year	Mean length of fish in age class--											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1936	--	--	--	--	--	--	--	--	--	--	--	--
1937[2]	129.5	182.5	202.6	218.5	229.8	237.1	244.4	251.7	261.5	260.1	265.8	N.f.
1938[2]	N.f.	175.8	207.2	221.8	234.4	240.8	245.5	252.2	258.4	264.0	266.9	267.0
1939[2]	N.f.	162.0	201.2	220.6	233.1	241.9	244.2	250.7	254.1	260.3	263.0	272.0
1940[2]	152.0	182.5	207.9	223.9	229.9	240.3	245.0	250.0	254.6	260.2	260.8	264.1
1941	--	--	--	--	--	--	--	--	--	--	--	--
1942[2]	N.f.	178.9	206.1	216.0	229.2	235.8	239.8	244.6	253.8	255.1	N.f.	N.f.
1943[2]	N.f.	180.6	203.8	219.4	225.6	231.9	238.9	242.5	N.f.	N.f.	N.f.	N.f.
1944[2]	N.f.	181.8	203.6	218.1	228.1	234.4	246.1	247.8	240.0	N.f.	N.f.	N.f.
1945[2]	N.f.	190.5	205.2	217.5	227.3	233.6	238.1	248.9	247.5	260.0	N.f.	N.f.
1946[2]	N.f.	179.8	201.2	215.9	226.1	233.9	239.2	246.9	251.1	255.2	255.0	N.f.
1947[2]	N.f.	182.7	203.0	217.6	227.1	233.2	240.4	244.0	251.3	253.4	254.8	249.2
1948[2]	133.7	181.5	203.5	218.7	227.8	236.9	242.6	246.9	251.3	252.5	258.0	258.8
1949	--	--	--	--	--	--	--	--	--	--	--	--
1950[2]	N.f.	182.8	200.2	216.0	230.9	242.1	246.6	252.8	255.0	259.5	262.8	260.0
1951[2]	N.f.	N.f.	202.9	207.9	233.8	235.6	248.5	249.2	260.8	260.0	N.f.	N.f.
1952	--	--	--	--	--	--	--	--	--	--	--	--
1953	--	--	--	--	--	--	--	--	--	--	--	--
1954	--	--	--	--	--	--	--	--	--	--	--	--
1955	--	--	--	--	--	--	--	--	--	--	--	--
1956	N.f.	N.f.	180.5	184.8	199.6	211.7	224.2	227.8	242.3	243.7	250.8	N.f.
1957	N.f.	152.5	184.3	188.8	193.1	206.2	207.1	222.7	230.0	224.0	N.f.	N.f.
1958	127.3	162.8	188.5	N.f.	200.6	212.0	217.5	232.5	N.f.	N.f.	N.f.	N.f.
1959	117.9	150.5	161.8	163.5	191.1	201.8	211.2	N.f.	231.5	221.0	N.f.	N.f.

[1] See Table 6 for numbers of samples and numbers of fish. No data on length were collected in 1936, 1941, 1952, and 1953; and fishery did not operate in 1949, 1954, and 1955.

[2] Lengths calculated from 5-mm midpoints.

Table 15.—Sex of herring by age class, southeastern Alaska reduction fishery, 1929-66.[1]

Year	Fish (by sex) in age class--																			
	I		II		III		IV		V		VI		VII		VIII		IX		X	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
1929	0	0	79	95	945	824	82	87	72	53	121	122	43	41	21	28	11	8	15	13
1930	0	0	22	16	403	371	1,336	1,270	53	50	51	41	23	24	11	9	5	3	1	2
1931	1	0	24	63	32	42	91	80	109	131	13	10	2	2	2	3	0	1	0	0
1932	0	0	16	13	176	174	35	43	42	58	48	57	4	6	0	3	0	2	1	0
1933	0	0	5	5	12	9	26	34	7	8	21	22	20	22	0	0	1	0	0	0
1934	0	0	1	1	403	422	34	26	44	53	21	22	23	27	5	4	0	0	0	0
1935	0	0	2	3	18	15	195	258	14	15	8	5	4	2	1	0	0	2	0	0
1936	0	1	29	61	57	85	48	51	308	320	9	15	10	7	1	1	1	0	0	0
1937	8	6	144	182	81	94	44	40	38	23	134	119	7	2	1	1	0	0	0	0
1938	0	0	0	2	178	181	544	486	38	37	31	19	24	20	64	61	1	0	1	0
1939	5	3	37	49	117	128	135	193	15	10	6	6	9	3	1	5	1	2	0	0
1940	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1941	19	32	339	335	259	269	56	73	31	36	8	14	3	2	1	0	0	0	0	0
1942	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1943	0	0	218	184	853	898	265	265	51	47	34	29	12	17	1	2	1	1	0	0
1944	3	3	457	490	444	590	733	794	143	148	22	33	11	7	2	5	0	0	0	0
1945	74	125	49	62	1,142	1,253	266	302	344	413	68	62	12	14	4	6	0	1	0	0
1946	5	1	1,002	944	767	750	1,098	1,100	237	263	252	295	46	48	10	2	4	3	0	2
1947	8	7	49	43	1,080	1,011	195	206	168	207	28	30	18	22	1	5	0	0	1	0
1948	4	12	75	86	185	194	989	1,133	98	89	112	118	27	33	9	17	1	1	0	0
1949	5	11	254	299	258	309	209	207	635	589	65	59	81	73	17	11	10	8	1	0
1950	0	0	44	51	266	337	194	210	287	321	440	477	32	43	24	33	10	5	3	1
1951	1	0	83	89	152	140	316	426	102	107	32	45	41	49	5	1	0	2	0	0
1952	7	26	58	115	138	175	171	203	350	485	119	180	58	62	40	42	6	2	4	3
1953	1	3	507	482	235	258	104	85	245	238	150	173	49	50	24	16	8	11	0	1
1954	0	1	0	10	153	138	72	61	25	16	57	66	20	39	4	3	6	10	3	2
1955	0	0	682	621	36	35	184	213	65	74	15	11	47	42	22	26	6	7	2	3
1956	0	0	0	0	898	765	34	36	187	249	52	68	21	18	43	44	23	29	5	10
1957	0	0	0	1	177	182	3,428	3,831	438	469	94	110	36	18	11	9	1	4	0	2
1958	0	10	55	70	238	333	277	315	4,945	5,617	129	202	22	35	3	3	0	1	0	1
1959	34	62	1,791	1,863	251	223	211	204	334	298	3,584	3,944	59	61	24	23	4	2	1	0
1960	1	0	1,157	1,486	1,921	2,008	133	123	95	94	97	105	653	682	32	27	1	1	2	3
1961	0	0	43	76	1,693	1,853	921	994	134	137	69	57	57	56	29	20	0	1	0	0
1962	0	0	3	4	44	51	616	641	75	97	2	5	4	4	6	7	7	3	0	0
1963	0	0	23	53	42	27	64	69	416	369	40	45	2	2	1	1	0	3	0	1
1964	0	0	0	2	39	71	31	74	67	124	526	1,123	84	183	8	10	2	5	0	1
1965	0	0	0	0	8	10	209	179	303	287	137	133	293	256	337	304	14	13	0	0
1966	0	1	85	98	90	82	251	264	410	440	119	120	115	90	79	80	2	1	1	1

[1] See Table 3 for numbers of samples and numbers of fish. Fishery did not operate in 1940 and 1942. Age classes XI and XII had so few fish that they were not separated by sex.

Table 16.—Sex of herring by age class, Prince William Sound reduction fishery, 1937-58.[1]

Year	Fish (by sex) in age class--																			
	I		II		III		IV		V		VI		VII		VIII		IX		X	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
1937	10	5	137	100	44	32	36	28	26	15	311	165	37	18	24	25	28	24	48	16
1938	0	0	63	60	162	146	17	17	41	15	40	32	294	260	23	28	35	36	10	22
1939	2	3	130	131	1,076	1,011	775	818	12	10	19	20	24	21	231	180	18	17	15	6
1940	0	0	329	331	163	141	461	383	314	324	5	3	5	1	2	2	27	35	2	4
1941	11	12	550	650	197	250	113	146	400	378	236	211	7	5	2	3	3	4	4	1
1942	6	11	318	306	548	508	41	47	19	11	85	51	51	39	1	2	0	1	1	1
1943	1	3	300	291	62	76	155	144	9	2	0	0	1	4	0	1	0	0	0	0
1944	0	0	542	737	376	462	70	55	75	76	4	1	3	0	1	0	0	0	0	0
1945	0	0	94	186	148	115	16	25	0	0	4	4	0	0	0	0	0	0	0	0
1946	0	1	154	219	40	53	22	35	8	7	1	2	0	0	0	0	0	0	0	0
1947	0	0	0	0	6	7	6	7	7	10	2	4	1	0	0	0	0	0	0	0
1948	8	12	68	48	29	43	267	281	62	61	143	156	70	67	7	16	13	10	1	0
1949[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1950	1	0	152	132	131	116	191	191	185	158	417	513	72	74	59	55	4	11	2	1
1951	0	0	57	53	417	461	120	131	129	162	91	90	241	270	45	47	30	32	7	8
1952	8	27	193	198	128	135	317	278	48	42	32	39	16	25	40	31	5	7	5	5
1953[3]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1954	63	93	19	23	1,816	2,086	32	39	13	11	12	9	3	2	1	1	0	0	0	0
1955	0	0	1,285	1,334	23	19	430	325	8	8	1	0	9	2	2	1	0	0	0	0
1956	0	1	66	59	1,236	1,201	35	22	89	70	1	2	0	1	0	0	0	0	0	0
1957	23	38	69	83	26	21	1,623	1,623	107	143	107	122	10	9	0	0	0	0	1	0
1958	39	65	557	652	293	276	50	25	494	379	7	6	17	10	0	0	0	0	0	0

[1] See Table 4 for numbers of samples and numbers of fish. Age classes XI and XII had so few fish that they were not separated by sex.
[2] Fishery operated, but no data were collected in 1949.
[3] Fish were not separated by sex.

Table 17.—Sex of herring by age class, Resurrection Bay-Day Harbor reduction fishery, 1941-57.[1]

Year	Fish (by sex) in age class--																			
	I		II		III		IV		V		VI		VII		VIII		IX		X	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
1941[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1942	0	0	50	64	93	89	2	1	2	1	2	2	2	1	0	1	0	0	0	0
1943	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1944	0	0	9	32	63	104	19	23	35	46	2	4	1	0	0	0	0	1	0	0
1945	0	0	21	63	244	400	95	97	25	21	10	24	1	0	0	0	0	0	0	0
1946	0	1	131	190	85	112	255	272	91	94	25	34	18	19	1	0	0	1	0	0
1947	0	0	0	0	22	25	16	26	15	16	9	7	5	1	0	3	0	0	0	0
1948	0	1	62	48	16	26	123	158	16	22	37	35	17	8	1	2	1	1	0	0
1949	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1950	0	0	23	16	3	3	13	17	27	19	72	100	23	20	23	18	4	12	2	0
1951	0	0	82	102	56	69	23	24	50	39	35	43	133	103	29	23	20	11	4	4
1952	2	1	63	57	18	22	18	17	6	6	8	6	5	4	5	6	2	2	2	6
1953	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1954	0	0	0	0	2	0	35	50	1	1	0	0	0	0	0	0	1	0	0	0
1955	0	1	534	652	1	3	67	64	3	1	1	0	0	0	0	1	0	0	0	0
1956	0	0	23	24	261	297	7	4	3	8	0	0	0	0	0	0	0	0	0	0
1957	23	35	52	69	5	4	508	522	6	9	47	50	0	2	0	0	0	0	0	0

[1] See Table 5 for numbers of samples and numbers of fish. No data were collected in 1943 and 1953, and fishery did not operate in 1949. Age classes XI and XII had so few fish that they were not separated by sex.
[2] Fish not separated by sex.

Table 18.—Sex of herring by age class, Kodiak reduction fishery, 1936-59.[1]

Year	Fish (by sex) in age class--																			
	I		II		III		IV		V		VI		VII		VIII		IX		X	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
1936-	0	0	0	0	3	0	14	3	149	37	13	1	4	0	10	1	7	7	3	1
1937	2	0	25	9	26	15	21	12	20	7	519	297	32	23	33	17	24	4	62	21
1938	0	0	54	50	47	33	32	27	21	18	54	35	298	293	16	23	13	17	18	16
1939	0	0	5	7	492	590	164	185	28	28	15	23	32	17	208	238	8	15	7	18
1940	0	1	5	4	27	20	725	745	268	332	58	54	22	35	22	19	116	135	7	9
1941	2	8	198	195	33	58	58	72	803	908	206	273	30	36	14	17	28	32	23	42
1942	2	2	238	219	805	1,076	62	80	44	39	438	512	80	120	9	10	7	10	6	8
1943	0	0	154	166	538	490	832	906	55	74	37	26	165	161	40	35	3	1	2	0
1944[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1945[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1946	0	0	174	161	180	207	285	304	354	349	371	371	115	117	10	11	13	10	13	15
1947	0	0	41	44	523	542	179	192	248	241	295	275	364	314	89	85	20	16	12	7
1948	1	1	17	25	91	92	477	511	127	135	145	155	184	215	316	266	70	56	10	11
1949	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1950	0	0	17	27	668	823	117	154	95	110	167	204	50	66	56	51	57	58	59	61
1951	0	0	0	0	18	24	117	121	11	18	15	11	17	13	1	2	1	2	2	0
1952	0	0	0	0	3	5	2	6	42	67	3	3	7	5	0	1	2	1	0	0
1953	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1954	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1955	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1956	0	0	2	0	1,294	1,517	28	32	295	331	34	31	20	21	11	17	11	12	3	1
1957	0	0	3	13	79	66	2,889	3,257	118	136	146	185	16	12	1	6	1	0	1	0
1958	1	1	5	7	1	1	0	0	234	270	1	0	7	7	0	2	0	0	0	0
1959	66	53	147	156	49	54	16	16	27	46	276	322	27	46	0	0	0	2	0	1

[1] See Table 6 for numbers of samples and numbers of fish. Fishery did not operate in 1949, 1954, and 1955. Fishery operated in 1953, but no data were collected. Age classes XI and XII had so few fish that they were not separated by sex.
[2] Fish not separated by sex.

UNITED STATES
DEPARTMENT OF COMMERCE
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
SCIENTIFIC PUBLICATIONS STAFF
BLDG. 67, NAVAL SUPPORT ACTIVITY
SEATTLE, WASHINGTON 98115

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE